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[Continued on next page]

(54) Title: THIN DIELECTRIC FORMATION BY STEAM OXIDATION

Present Invention

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graph TD
    A[Wafer loaded into chamber] --> B[Wafer ramped to temperature in steam and SiO2 layer grown in steam]
    B --> C[Wafer cooled and removed from reactor]
  
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Wafer loaded into
chamber

Wafer ramped to
temperature in steam
and SiO₂ layer grown
in steam

Wafer cooled and
removed from reactor

(57) Abstract: The present invention relates to the steam oxidation of silicon wafers to form thin gate and capacitor dielectrics with improved electrical properties. In the present invention, improved oxide properties are obtained in a single wafer Rapid Thermal Process ("RTP") by beginning steam oxidation without stabilizing the silicon wafer in dry oxygen.

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European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/22059

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01L 21/302, 21/461, 21/31

US CL : 438 /770, 771, 773

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 438 /770, 771, 773

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,037,273 A (GRONET et al) 14 March 2000 (14.03.2000), abstract last two lines; column 5 line 60 - column 6 line 5; column 7, line 2.	1-10

☐

Further documents are listed in the continuation of Box C.

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See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

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"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

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"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

05 November 2003 (05.11.2003)

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:
EAST; WEST
search terms: interfacial near oxide near layer